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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/771,612	02/04/2004	Thomas D. Welton	2003-IP-011869U1	3438

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11/29/2006

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EXAMINER
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SUCHFIELD, GEORGE A

ART UNIT	PAPER NUMBER
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3676

DATE MAILED: 11/29/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

# Office Action Summary

Application No.

10/771,612

Applicant(s)

WELTON ET AL.

Examiner

George Suchfield

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☒ Responsive to communication(s) filed on 15 June 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 1-41 is/are pending in the application.
- 4a) Of the above claim(s) 1-21 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 22-41 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☒ Claim(s) 1-41 are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

## Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

## Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)            | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)   | Paper No(s)/Mail Date. _____                                      |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>6/15/05</u> .   | 6) <input type="checkbox"/> Other: _____                          |

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1.

1. Restriction to one of the following inventions is required under 35 U.S.C. 121:

I. Claims 1-21, drawn to a method of inhibiting corrosion, classified in class 422, subclass 12.

II. Claims 22-41, drawn to a method of acidizing a near well bore region of a subterranean formation, classified in class 166, subclass 307.

The inventions are distinct, each from the other because of the following reasons:

2. Inventions I and II are directed to related methods where one method is directed to addition of a corrosion inhibitor to inhibit corrosion in a corrosive environment and the other method is aimed at acidizing a near well bore region of a subterranean formation where the acidizing solution is comprised of an acid as well as a corrosion inhibiting compound. The related inventions are distinct if the (1) the inventions as claimed are either not capable of use together or can have a materially different design, mode of operation, function, or effect; (2) the inventions do not overlap in scope, i.e., are mutually exclusive; and (3) the inventions as claimed are not obvious variants. See MPEP § 806.05(j). In the instant case, the method claimed in Group I is aimed to prevent/inhibit corrosion with steps of providing a corrosive environment and adding a corrosion inhibitor and the method in Group II which is aimed at treating a near well bore region with an acid with steps of isolating a zone along a well bore and placing an acidizing solution in the zone of interest. These two methods do not have same steps nor do they have same effects or mode of operation. Furthermore, the inventions as claimed do not

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encompass overlapping subject matter and there is nothing of record to show them to be obvious variants.

3. Because these inventions are independent or distinct for the reasons given above and there would be a serious burden on the examiner if restriction is not required because the inventions have acquired a separate status in the art in view of their different classification, restriction for examination purposes as indicated is proper.

4. During a telephone conversation between Examiner Regina Yoo and Robert Kent on November 2, 2006 at 3:30 pm, a provisional election was made without traverse to prosecute the invention of II, claims 22-41. Affirmation of this election must be made by applicant in replying to this Office action. Claims 1-21 withdrawn from further consideration by the examiner, 37 CFR 1.142(b), as being drawn to a non-elected invention.

5. The disclosure is objected to because of the following:

In page 5 or Para [0013} of the specification, it is not clear what is meant by the recitations "R[H]" and R'[H]". Also, no description or identification of the symbol R" has been provided.

Appropriate correction is required.

6. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

7. Claims 24-26, 28-34, 36, 37 and 39-41 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claims 24-26, 28-30, 33, 36, 39 and 41 are deemed indefinite in being drawn to improper Markush groupings. As noted in MPEP Section 2173.05(h), the use of the term "comprising" or comprises is improper in setting forth the Markush grouping. Accordingly, in line 1 or 2 of each of these claims, the transitional phrase "comprises" must be changed to, -- is selected from the group consisting of -- or -- is -- .

Claims 30-32, 34 and 37 are also deemed indefinite insofar as they depend from one or more of the above claims.

Claim 40 recites the limitation "the solvent" in line 1. There is insufficient antecedent basis for this limitation in the claim.

8. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

9. Claim 22-31 and 38-41 are rejected under 35 U.S.C. 102(b) as being anticipated by Knox et al (3,669,613).

Knox et al (note col. 1, line 59 - col. 2, line 20; col. 3, lines 36-43) discloses a process of acidizing a near wellbore region of a subterranean formation with an acidizing solution comprising an acid and a corrosion inhibitor which comprises the reaction product of a thiol

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compound, such as hydrogen sulfide, with an aldehyde compound, as called for in independent claim 22.

As per claim 23, insofar as the corrosion inhibitor of Knox et al comprises the reaction product of a thiol and an aldehyde, the resultant reaction product will necessarily or inherently comprise an “thioacetal”.

Similarly, since a variety of aldehydes may be utilized, such as alkyl and/or aryl aldehydes, aldehydes with hydroxyl groups and/or saturated/unsaturated aldehydes, the resulting reaction product will further include a “monothioacetal and/or dithioacetal”, as called for in claim 24.

As per claim 25, one or more of the specific aldehyde compounds recited are deemed encompassed by the corresponding aryl aldehyde compounds of Knox et al (note col. 1, line 67 – col. 2, line 8).

As noted above, the thiol compound in Knox et al comprises hydrogen sulfide, as called for in claim 26.

As per claim 27, Knox et al (note col. 3, line 50 – col. 4, line 3) further discloses that the their aldehyde-thiol reaction product corrosion inhibitor may be used in combination with another conventional corrosion inhibitor(s).

As per claims 28 and 29, it appears that one or more of the recited conventional or “traditional” corrosion inhibitors are encompassed by the corresponding conventional corrosion inhibitors suitable for use in Knox et al (note col. 3, lines 63-68 and Example V).

As per claims 30 and 31, the relative concentration range of the conventional corrosion inhibitor when used in combination with the aldehyde-thiol reaction product corrosion inhibitor

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in the acidizing process of Knox et al appears encompassed by Knox et al (note col. 3, lines 28-63), wherein both corrosion inhibitors may be each be admixed in exemplary amounts of up to 10,000 ppm.

As per claims 38 and 39, Knox et al (note col. 3, lines 32-35) may further include a solvent, such as an alcohol, in admixture with their aldehyde-thiol reaction product corrosion inhibitor, with the amount or range of solvent utilized within the overall acidizing or treatment solution, as called for in claim 40, deemed encompassed by Knox et al (note examples I-III).

As per claim 41, clearly one or more of these acids are utilized as the acid medium in formulating the acidizing formulation for use in the well and/or subterranean formation acidizing process of Knox et al.

10. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

11. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

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12. Claims 32-34 are rejected under 35 U.S.C. 103(a) as being unpatentable over Knox et al (3,669,613) as applied to claim 22 above, and further in view of Brezinski (5,976,416).

Brezinski (note col. 1, line 48 – col. 2, line 20) notes in his discussion of prior art that it is well known to employ corrosion inhibitor activators or intensifiers in combination with a corrosion inhibitor(s), with such activators typically comprising an antimony or copper salt.

Accordingly, it would have been obvious to one of ordinary skill in the art to which the invention pertains, to similarly include a conventional corrosion inhibitor activator, such as an antimony or copper chloride salt, into the acidizing formulation injected in the acidizing process of Knox et al, as taught by Brezinski, in order to enhance or improve the overall corrosion inhibitor effectiveness in the well and/or subterranean formation, as called for in claims 32 and 33.

As per claim 34, the particular amount or range of corrosion inhibitor activator or intensifier employed would have been an obvious matter of choice or design to one of ordinary skill in the art in carrying out the modified process of Knox et al based on, e.g., the characteristics and properties of the particular formation and/or well environment actually encountered in the field and/or result of routine experimentation for process optimization.

13. Claims 35-37 are rejected under 35 U.S.C. 103(a) as being unpatentable over Knox et al (3,669,613) as applied to claim 22 above, and further in view of Walker (5,441,929).

Walker discloses a process of acidizing a well with an acid solution comprising a corrosion inhibitor. Walker further discloses the use of a surfactant, such as a non-ionic surfactant, to facilitate the dispersion of the corrosion inhibitor in the acidizing formulation.



Accordingly, it would have been obvious to one of ordinary skill in the art to which the invention pertains, to similarly add a surfactant to the acidizing formulation injected in the acidizing process of Knox et al, as taught by Walker, in order to facilitate or enhance the dispersion of the corrosion inhibitor(s) in the acidizing formulation injected, as called for in claims 35 and 36.

As per claim 37, the particular amount or range of surfactant employed would have been an obvious matter of choice or design to one of ordinary skill in the art in carrying out the modified process of Knox et al based on, e.g., the characteristics and properties of the particular formation and/or well environment actually encountered in the field and/or result of routine experimentation for process optimization.

14. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

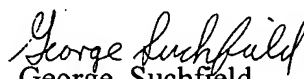
Other references cited disclose processes of acidizing a subterranean formation penetrated by a well and/or exemplary corrosion inhibitor formulations for use in well treatment operations.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to George Suchfield whose telephone number is 571-272-7036. The examiner can normally be reached on M-F (6:30 - 3:00).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Brian Glessner can be reached on 571-272-6843. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

  
George Suchfeld  
Primary Examiner  
Art Unit 3676

Gs  
November 25, 2006